

WHAT IS CLAIMED IS:

1. A method of operating client equipment in operative communication with a content-based network, the method comprising:

5 receiving at said equipment an application configured to implement a network-specific protocol;

storing said application within a storage device of said client equipment;

running said application to configure said equipment according to said network-specific protocol; and

10 operating said CPE and said application to provide on-demand services to a user.

2. The method of Claim 1, wherein said act of receiving comprises receiving using an in-band channel of an HFC network.

3. The method of Claim 1, wherein said act of running to configure comprises running to cause said equipment and said application to configure at least one path within said equipment wherein an on-demand application resident on said equipment may access one or
15 more media-based interfaces via said network specific protocol.

4. The method of Claim 3, wherein said act of running is performed in response to activation of said on-demand application resident on said client equipment.

5. A method of operating client equipment in operative communication with a content-based network, the method comprising:

20 receiving at said equipment a first application configured with a network specific protocol extension;

storing said first application within a storage device of said client equipment;

running said first application to configure said equipment according to said protocol; and

25 selectively allowing a plurality of applications resident on said equipment to access said extension.

6. The method of Claim 5, wherein said plurality of applications comprises at least said first application.

7. The method of Claim 5, wherein said content based network comprises an HFC
30 cable network, and at least one of said plurality of applications comprises an on-demand application.

8. The method of Claim 7, wherein said client equipment comprises Java-based CPE, and at least one of said plurality of applications accesses said extension using one or more Java Media Framework (JMF) APIs.

9. A method of operating client equipment adaptable for use in any one of a plurality of different content-based networks within a particular content-based network, the method comprising:

receiving at said equipment an application configured with a protocol extension, said protocol extension being adapted for use in said particular network within which said client equipment operates;

running said application to configure said equipment according to said protocol; and selectively allowing at least one application resident on said equipment to access said extension, said at least one application having attributes specific to said particular network.

10. The method of Claim 9, wherein said particular content based network comprises an HFC cable network, and said at least one application comprises an on-demand application.

11. The method of Claim 10, wherein said client equipment comprises Java-based CPE, and said at least one application accesses said extension via one or more Java Media Framework (JMF) APIs.

12. A method of developing the specific protocol useful for delivery of content from a first node of a network to a second node thereof, the method comprising:

developing a first component adapted to communicate between said first and second nodes;

developing a second component adapted to process the content delivered to said second node; and

developing a third component adapted to cooperate with at least one of said first and second components to control functions specific to said protocol.

13. The method of Claim 12, wherein said cooperation with at least one of said first and second components comprises accessing said first component to cause at least one message to be sent between said second node and said first node, said at least one message causing at least one corresponding function to be executed.

14. The method of Claim 12, wherein said act of developing said first component comprises developing a Java DataSource.

15. The method of Claim 14, wherein said act of developing said second component comprises developing a Java MediaHandler.

16. The method of Claim 15, wherein said act of developing said third component comprises developing a controller adapted to access said first component to cause at least one message to be sent between said second node and said first node, said at least one message causing at least one corresponding function to be executed.

17. The method of Claim 14, wherein said act of developing a first component comprises developing a DataSource component further adapted to setup a session and handshake or negotiate conditional access parameters.

18. The method of Claim 14, wherein said act of developing a first component comprises developing a DataSource component further adapted to specify the channel on which said content will be delivered.

19. The method of Claim 12, wherein said act of developing a first component comprises adapting said first component to provide messaging in support of a plurality of functional modes in cooperation with said third component, said third component being adapted to provide said plurality of functional modes.

20. The method of Claim 12, wherein said act of developing a second component further comprises developing a player component adapted for implementing said second component.

21. CPE adapted for operation within a content-based network, said CPE comprising at least one software application adapted for providing on-demand services to at least one user using at least one network-specific protocol, said at least one application comprising:
a first software component adapted to communicate between said CPE and another entity of said network;
a second software component adapted to process the content delivered to said CPE; and
a third software component adapted to cooperate with at least one of said first and second components to control functions specific to said protocol.

22. The CPE of Claim 21, wherein said CPE comprises a DSTB with Java-based middleware, and at least one of said first, second and third components of said at least one software application comprises at least one class and at least one interface disposed within the application directory hierarchy.

23. The CPE of Claim 22, wherein said CPE is adapted to:
receive said at least one application over said network; and
subsequent to said receipt, launch said at least one application to configure at least one
path to said at least one component.

5 24. The CPE of Claim 23, wherein said CPE further comprises a plurality of
applications, said plurality of other applications being enabled to access said at least one
component via at least one of said at least one configured paths.

25. A method of implementing a network-specific on-demand application within the
CPE of said network, the method comprising:

10 developing a plurality of media interface components adapted to implement a network-
specific protocol;

disposing said plurality of components within a software application to produce a
configured application;

running said configured application on said CPE; and

15 defining at least one path to said media interface components, said at least one path and
media interface components cooperating to provide network specific on-demand services.

26. The method of Claim 25, wherein said act of developing a plurality of media
interface components comprises developing a plurality of Java Media Framework components.

27. The method of Claim 26, wherein said act of disposing said plurality of media
20 interface components comprises disposing a plurality of classes and interfaces within the
directory hierarchy structure of said application.

28. The method of Claim 25, wherein said act of disposing said plurality of media
interface components comprises:

providing said components to said CPE;

25 providing said software application to said CPE; and

assembling said configured application at said CPE using at least said components and
said software application.

29. Apparatus adapted for operation within a multi-channel HFC cable distribution
network, said apparatus comprising:

30 a digital processor;

a storage device operatively coupled to said processor;

middleware adapted to run on said processor; and

at least one software application adapted to run on said processor, said at least one application having a plurality of developed components within its application directory hierarchy;

wherein said apparatus is further configured to:

- 5 run said application; and
 configure at least one path to at least one of said developed components.

30. The apparatus of Claim 29, wherein said developed components comprise Java classes and interfaces.

31. A method of conducting business via a cable network having a client device
10 operatively coupled thereto, said device being compatible for use on a variety of different cable networks, the method comprising:

 disposing a software application on said device, said software application being configured to implement a network-specific protocol, said network-specific protocol implementing one or more network-specific on-demand services; and

15 running said at least one software application on said device, said running configuring at least one path within said CPE to permit access of said network-specific on-demand services by a user.

32. A method of utilizing CPE compatible for use on a variety of different cable networks within any given one of said networks, the method comprising:

20 disposing said CPE within said given one network to be in operative communication with another network entity;

 transferring a software application onto said device from said network entity, said software application being configured to implement a network-specific protocol, said network-specific protocol implementing one or more network-specific on-demand services; and

25 running said at least one software application on said device, said running configuring at least one path within said CPE to permit access of said network-specific on-demand services by a user.

33. The method of Claim 32, wherein said CPE comprises Java-based middleware, and said access of said network-specific on-demand services is accomplished using at least a
30 Java Media Framework API.

34. A head-end apparatus adapted for providing a network-specific on-demand application to CPE of said network, the apparatus comprising:

at least one computer; and

at least one computer program adapted to develop a specific protocol useful in implementing said on-demand application according to the method comprising:

5 developing a first component adapted to communicate between said head-end and said CPE;

 developing a second component adapted to process the content delivered to said CPE; and

 developing a third component adapted to cooperate with at least one of said first and second components to control functions specific to said on-demand application.

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